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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,702

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Ikuya Yagisawa

IIP-5094

9171

24956

7590

07/26/2006

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EXAMINER

BRADLEY, MATTHEW A

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/775,702	YAGISAWA ET AL.	
	Examiner	Art Unit	
	Matthew Bradley	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4 May 2006 has been entered.

Claim Status

Claims 22-43 remain pending and are ready for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **22-43** are rejected under 35 U.S.C. 102(e) as being anticipated by Kern et al (U.S. 7,043,665) hereinafter referred to as Kern.

As per independent claim **22**, Kern teach,

- a plurality of disks including first disks configuring a RAID group and at least one second disk, wherein each of the first disks store one of data

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received from a computer coupled to the storage system or parity data used for recovering the data received from the computer, (Column 4 lines 64-67)

- and wherein the at least one second disk is to be used as a spare disk; and (Column 6 lines 4-11)
- a control section configured to hold an error status of each of the first disks, start to mirror data between one of the first disks and the at least one second disk when the error status of the one of the first disks matches a predetermined first criterion, (Column 9 lines 29-49)
- wherein, after starting to mirror data between the one of the first disks and the at least one second disk, the control section is configured to stop mirroring data between the one of the first disks and the at least one second disk and start to mirror data between another one of the first disks and the at least one second disk, according to the error status of the one of the first disks and the another one of the first disks (Column 9 line 64 to Column 10 lines 5 as further taught in Column 10 lines 22-34 and as shown in Figure 9).

As per independent claim 33, Kern teach,

- a plurality of disks including first disks configuring a RAID group and at least one second disk, wherein each of the first disks stores one of data received from a computer coupled to the storage system or parity data

used for recovering the data received from the computer, and (Column 4 lines 64-67)

- a control section configured to hold an error status of each of the first disks, start to mirror data between one of the first disks and the at least one second disk when the error status of the one of the first disks matches a predetermined first criterion, (Column 9 lines 29-47)
- wherein after starting to mirror data between the one of the first disks and the at least one second disk, the control section is configured to stop mirroring data between the one of the first disks and the at least one second disk and start to mirror data between another one of the first disks and the at least one second disk, according to the error status of the one of the first disks and the another one of the first disks (Column 9 line 64 to Column 10 line 5 as further taught in Column 10 lines 22-34 and as shown in Figure 9).

As per dependent claims **23** and **34**, Kern teach, the control section is configured to compare the error status of each of the first disks, and based on the result of error status comparison between the one of the first disks and the another one of the first disks, the control section is configured to stop mirroring data between the one of the first disks and the at least one second disk and start to mirror data between the another one of the first disks and the at least one second disk (Column 9 line 64 to Column 10 line 5). *The Examiner notes that the monitoring program of Kern monitors the status of each drive at the local sites. When a failure is detected at the local primary storage, the*

system fails over to the local secondary storage. Thus, the system of Kern monitors the error status of each disk has shown by the monitoring of the failure occurrence.

As per dependent claims **24** and **35**, Kern teach, when the error status of one of the first disks matches a predetermined second criterion, the control section is further configured to stop mirroring between the one of the first disks and the at least one second disk and configure a RAID group including the at least one second disk instead of the one first disks (Column 10 lines 22-34).

As per dependent claims **25** and **36**, Kern teach, wherein the error status of each of the first disks is error count of each of the first disks, and both of the predetermined first criterion and the predetermined second criterion are predetermined values of error count (Column 9 lines 64 to Column 10 line 5). *The Examiner is interpreting the system of Kern to maintain a null count for the system as it normally operates. When the local primary storage fails, the system of Kern detects this failure which is being interpreted as a second criterion.*

As per dependent claims **26** and **37**, Kern teach, wherein the value of error count for the predetermined first criterion is zero, whereby the control section is configured to mirror data between the one of the first disks and the at least one second disk initially (Column 7 lines 40-41).

As per dependent claims **27** and **38**, Kern teach, wherein the error count for the first criterion is updated according to the change of the error status of the first disks configuring a RAID group (Column 10 lines 59-63). *The Examiner notes that the system of Kern maintains the status of the storage systems such that external help can*

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be utilized in the event both are failed. Accordingly, the system of Kern updates the first criterion based on the change of the error status ,working or null, to not working or failed.

As per dependent claims **28** and **39**, Kern teach, wherein the error status of each of the first disks is error count of each of the first disks, and when the error count of the another one of the first disks becomes larger than the error count of the one of the first disks, the control section is configured to stop mirroring data between the one of the first disks and the at least one second disk and start to mirror data between the another one of the first disks and the at least one second disk (Column 9 line 64 to Column 10 line 5).

As per dependent claims **29** and **40**, Kern teach, wherein information indicating a pair of disks configuring a mirroring pair is output from the storage system to a management computer coupled to the storage system (Column 9 lines 29-47).

As per dependent claims **30** and **41**, Kern teach, wherein the predetermined first criterion is updated based on the error status of the first disks configuring a RAID group (Column 10 lines 59-63).

As per dependent claims **31** and **42**, Kern teach, wherein the control section is configured to start to mirror data between said another one of the first disks and the at least one second disk before a plan of mirroring data between said one of the first disks and the at least one second disk is completed (Column 9 line 64 to Column 10 line 5).

The Examiner notes that as shown supra, the system of Kern is initially set to mirror without incident. However, the system will failover in the event of a failure thus

anticipating the instant limitation of mirroring between another first disk before the initial mirror is complete.

As per dependent claims **32** and **43**, Kern teach, wherein the control section is configured to start to mirror data between said another one of the first disks and the at least one second disk, if the error status of said another one of the first disks is greater than or equal to the error status of said one of the first disks (Column 9 line 64 to Column 10 line 5).

Response to Arguments

Applicant's arguments have been carefully and fully considered but are moot in view of the new ground(s) of rejection.


Conclusion

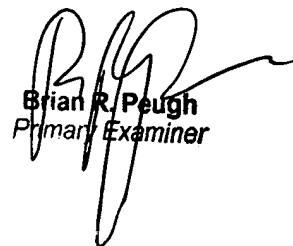
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Bradley whose telephone number is (571) 272-8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BRP/mb 


Brian R. Peugh
Primary Examiner